What is claimed is:

1. A method for determining state variables and parameters of a mathematical energy storage model, particularly of a battery model, with the aid of a state variable and parameter estimator (1), which, from operating variables (U_{Batt}, I_{Batt}, T_{Batt}) of an energy storage device (3), calculates the state variables (Z) and the parameters (P) of the mathematical energy storage model,
wherein the state variable and parameter estimator (1) includes a plurality of mathematical submodels (4, 5) which are validly applicable for different working ranges and or frequency ranges of the energy storage device (3).

2. The method as recited in Claim 1,
wherein a current (I_{Batt}) or a voltage (U_{Batt}) of the energy storage device (3) is supplied to the submodels (4, 5), the current (I_{Batt}) or the voltage (U_{Batt}) being restricted by a filter (6, 7) to the frequency range valid for a submodel (4, 5).

3. The method as recited in Claim 1 or 2,
wherein an error between an operating variable (U_{Batt}, I_{Batt}) of the energy storage device and an operating variable ($U_{Batt\wedge}$, $I_{Batt\wedge}$) calculated by a submodel (4, 5) is ascertained and fed back into the respective submodel (4, 5).

4. The method as recited in one of the preceding claims, wherein the error between an operating variable (U_{Batt}, I_{Batt}) of the energy storage device (3) and the operating variable ($U_{Batt\wedge}$, $I_{Batt\wedge}$) calculated by a submodel (4, 5) is fed back into another submodel (5).

5. The method as recited in Claim 3 or 4, wherein the error is weighted using a factor (k).

6. The method as recited in one of the preceding claims, wherein a state variable (Z) calculated by a submodel (4, 5) and/or a calculated parameter (P) are supplied to another submodel (5).

7. The method as recited in Claim 6,
wherein the state variables (Z) or parameter (P) are fed back weighted.

8. The method as recited in one of the preceding claims, wherein a stimulator (16) is provided in order to bring the current (I_{Batt}) or the voltage (U_{Batt}), that will be supplied to the submodels (4, 5) into a desired working range or frequency range.

9. A state variable and parameter estimator (1) for determining state variables (Z) and parameters (P) of a mathematical energy storage model, particularly of a battery model, which calculates the state variables (Z) and the parameters (P) of the mathematical energy storage model from the operating variables (U_{Batt}, I_{Batt}, T_{Batt}) of an energy storage device (3), wherein the state variable and parameter estimator (1) includes a plurality of submodels (4, 5) which are valid for different working ranges and/or frequency ranges of the energy storage device (3).

10. The state variable and parameter estimator (1) as recited in Claim 9, wherein a filter (6, 7) is preconnected to at least one of the submodels (4, 5) in order to restrict the operating variable (U_{Batt}, I_{Batt}), of the energy storage device (3), that is supplied to the submodel (4, 5), to the frequency range that is valid for the submodel (4, 5).

11. The state variable and parameter estimator (1) as recited in Claim 9 or 10, wherein the state variable and parameter estimator (1) is designed so that an error between an operating variable (U_{Batt}, I_{Batt}) of the energy storage device (3) and an operating variable ($U_{Batt^\wedge}$, $I_{Batt^\wedge}$) calculated by a submodel (4, 5) is ascertained and fed back into the respective submodel (4, 5).

12. The state variable and parameter estimator (1) as recited in one of Claims 9 through 11, wherein the state variable and parameter estimator (1) is designed so that an error between an operating variable (U_{Batt}, I_{Batt}) of the energy storage device (3) and an operating variable ($U_{Batt^\wedge}$, $I_{Batt^\wedge}$) calculated by a submodel (4, 5) is fed back into another submodel (5).

13. The state variable and parameter estimator as recited in one of Claims 9 through 12, wherein an apparatus (10 - 13) is provided for weighting the error that is fed back.

14. The state variable and parameter estimator (1) as recited in one of Claims 9 through 13, wherein a stimulator (16) is provided in order to bring the current or the voltage curve (I_{Batt},

U_{Batt}), that will be supplied to the submodels (4, 5), into a desired working range or frequency range.